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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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November 1, 2002

TO: Internal File

THRU: Stephen J. Demczak, Environmental Scientist III/Engineering, Team Lead SJD by ar

FROM: Priscilla W. Burton, Environmental Scientist III/Soils

RE: Methane Degas, Canyon Fuel Company, LLC., Dugout Canyon Mine, C/007/039-02J

SUMMARY:

The submittal was received on September 18, 2002. The Dugout Mine requires a ventilation borehole for the Rock Canyon seam to reduce methane along the RC-4 longwall panel. The site proposed for the MW-02 degas drill hole was previously permitted and developed as an exploration drill hole (DC-5) that was drilled in 1998. The location of MC-02 is shown on Figure 1-1 of the Amendment and on the Pine Canyon Quadrangle map. The amendment will increase the size of the permit area by 1.6 acres. The images of the site shown below were taken as part of the OSM Evaluation team 2002 review of exploration reclamation success (O:007039.dug/IMAGES/DugoutEXP/P0000471 and P0000475).

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The application indicates on the C1/C2 forms that the disturbed area will be 1.2 acres. This information does not agree with the dimensions of the disturbance (200 X 350 ft) given on page 2-2 of the application. Those dimensions equate to an area of 1.6 acres.

Findings

The information provided does not meet the minimum requirements of the Environmental Resource Information. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-121.200, The submittal must consistently indicate the acreage of disturbance in all sections and in the C1/C2 forms.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

Baseline soils information (Attachment 2-1) was compiled by Mr. Dan Larsen (Soil Scientist) with EIS Environmental and Engineering Consulting. Mr. Larsen's resume is attached with the report.

Baseline vegetation (Attachment 3-1) was documented by Mr. David Steed (Ecologist) and Mr. Mel Coonrod (Silviculturist and Zoologist) both with EIS Environmental and Engineering Consulting. Mr. M. Dean Stacy also participated, but his qualifications were not disclosed. Presumably, Mr. Stacy was acting under the direction of Mr. Steed and Mr. Coonrod.

Threatened and Endangered Species investigation (Attachment 3-2) was conducted by Mr. David Steed (Ecologist) and Mr. Mel Coonrod (Silviculturist and Zoologist) with EIS, Environmental and Engineering Consulting.

A bat survey was conducted by JBR (Section 322.200). The qualifications of the individual conducting the survey were not included with the application (neither was the survey).

The cultural resource evaluation and archaeological inventory was conducted by Mr. Glade Hadden and Mr. Patrick Walker (archaeologists) with Archeological-Environmental Research corporation.

Findings

The information provided is not adequate for the reporting of technical data requirements of the regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-131, The application must include the following information for the raptor survey and the bat survey: the dates of collection, the analysis of the data, and descriptions of the methodology used to collect and analyze the data.

R645-301-132, The qualifications of the JBR consultants to perform bat surveys must be disclosed.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

GENERAL

Regulatory Reference: 30 CFR 783.12; R645-301-411, -301-521, -301-721.

Analysis:

The borehole is located in the Book Cliffs between Dugout and Soldier Canyon Mines at an elevation of 8,000 feet. The UTM coordinates are T. 13 S., R. 12 E., Section 16, shown in Figure 1-1, (in the NE ¼ SE ¼ of Section 16).

The disturbed area will be approximately 1.6 acres in dimension (200 X 350 ft) as noted on page 2-2 of the application. The site was previously permitted and developed as an exploration drill hole (DC-5) in 1998.

Pine Canyon Utah USGS quadrangle map also shows the location. From the Quad map, one can see that the site is on a narrow ridge, above a small drainage contributing to Fish Creek. The soil survey indicates that the northwest slopes of the ridge supports Douglas fir and the southwest slopes support Ponderosa pine.

Findings:

The information provided does not meet the minimum requirements of the Environmental Resource Information. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-521, In Section 111 of the application, clearly identify the lands subject to surface disturbance resulting from construction of MW-02 using the correct UTM coordinates (R 13 S, R12 E), include the ¼ section location and identify the USGS Quadrangle map that locates the site.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.12; R645-301-411.

Analysis:

Archeological-Environmental Research Corporation (AERC) evaluated the site for historic and archeological resources in July of 1998 before exploration drilling. The survey consisted of a series of 10 – 20 meter transects within the exploratory well pad location and a 100-foot wide corridor for the access route into unit F. The results of the survey are found in Appendix 4-1. The site received clearance for drilling with the following stipulations: 1) all vehicular traffic, personnel movement, and construction and restoration operations should be confined to the flagged area examined as referenced in this report, and to the existing roadways. 2) All personnel should refrain from collecting artifacts and from disturbing any significant cultural resources in the area. 3) The authorized official should be consulted should cultural remains from subsurface deposits be exposed during construction work or if the need arises to relocate or otherwise alter the location of the exploration area.

These stipulations for development of DCH-5 would also be applicable to the development of site MW-02.

Findings

The information provided for the development of drill hole site DCH-5 is adequate for the purposes of the Regulations, assuming that the disturbed area boundary of MW-02 is the same as that of DCH-5.

CLIMATOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.18; R645-301-724.

Analysis:

The site is at an elevation of approximately 8000 feet.

The application indicates on page 7-3 that climatological information can be found in Appendix 4-1 of the MRP. Appendix 4-1 of the MRP contains the air quality permit.

Page 7-39 of the approved MRP indicates that climatological information for the site is summarized in Appendix 4-2 of the MRP. This is an incorrect reference; Appendix 4-2 is titled Land Uses.

The Division could not locate the climatological information referred to on page 7-39 of the MRP and on page 7-3 of the submittal.

Findings

The information provided does not adequately addresses the minimum requirements of the climatological information section of the regulations. Prior to approval, please provide the following in accordance with:

R645-301-724, The application must include climatological information.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.19; R645-301-320.

Analysis:

The archaeologist's report in Appendix 4-1, dated July 1998, indicates that the observation of cultural materials was hampered by vegetation densities with 50 – 66% of the surface covered by vegetation.

After the exploration occurred at DCH-5, the OSM Evaluation Team 2002 Exploration report on the site reads as follows:

"Revegetation was not successful at one of the drill-hole sites disturbed, graded, and seeded in 1998 (Canyon Fuel Company LLC Dugout Mine, ACT/007/039-AM99H, hole DCH-5). Almost no vegetation existed at the site. After the field visit, the operator

submitted an application to go back onto the site for the purposes of extracting coal methane gas in advance of the underground mine. If Utah-DOGM approves this application, the disturbance at this site will be subject to the reclamation requirements of Utah's coal mining rules rather than the coal exploration rules. If Utah-DOGM does not approve this application, the team recommends that Utah-DOGM require the operator to reseed the disturbed area under the coal exploration rules."

Attachment 3-1 Vegetation Inventory of the site (EIS Environmental & Engineering Consulting, June 4, 2002) reports that transect #8 was in the location of MW-02 (DCH-5). The 100-foot transect was sampled at 10-foot intervals. For the MW-02 sampling point:

- total vegetative ground cover equaled 12 %.
- woody plant cover equaled 1%.
- ocular estimate of productivity was less than 100 lbs/ac.
- ocular estimate of percent overstory was 10%.
- litter accounted for 15% of the surface.
- rock accounted for 9% of the surface.
- bare ground equaled 64%.

A list of species for site MW-02 reads as follows:

- Alfalfa, *Medicago sativa.*
- Needle & thread grass, *Stipa comata.*
- Wheat grass, *Agropyron sp.*
- Snowberry, *Symphoricarpos oreophilus.*

The low productivity of the site was accounted for by drought and grazing pressure. The consultant specifically mentioned that seed chosen to reclaim the site was attractive to grazing animals and encouraged heavy use by the animals. Productivity measurements reported for the purposes of meeting this Regulation must be based upon weight per unit area as described in the Division's 1992 Vegetation Guidelines. Range condition of the site should be estimated.

Productivity of a reference area should be evaluated by the Natural Resources Conservation Service as per the Division's 1992 Vegetation Guidelines, (incorporated into the Regulations by reference R645-301-356.110).

The site of MW-02 is not in good range condition. Reclamation of the site must be compared to adjacent undisturbed areas, not the existing condition of the site.

Vegetation information for the adjacent undisturbed area of similar topography must be provided to allow development of seed mixes, revegetation success standards, and woody plant density, see discussion under Reclamation Vegetation Success Standards and deficiencies written under R645-301-356.100.

Findings:

Vegetation information for the adjacent undisturbed area of similar topography must be provided to allow development of seed mixes, revegetation success standards, and woody plant density, see discussion under Reclamation Vegetation Success Standards and deficiencies written under R645-301-356.100. The information provided is not adequate for the purposes of the Regulations. Prior to approval, please provide the following in accordance with:

R645-301-321.100, (1) Vegetation field notes for transect 14/15 of Attachment 3-1 are illegible and methodology described in Attachment 3-1 incorrectly states the number of sampling points in each transect. (2) Range condition should be estimated for the site and a reference area.

R645-301-321.200, (1) The application must provide an estimate of the productivity of the MW-02 site and for comparison productivity of a reference area. (2) Productivity estimates should be evaluated by the Natural Resources Conservation Service. (3) Productivity measurements reported for the purposes of meeting this Regulation must be based upon weight per unit area as described in the Division's 1992 Vegetation Guidelines.

R645-301-323.100, The application must include the location and boundary of a reference area on a map.

R645-301-121.200, Attachment 3-2 indicates that the area had less than 100 lbs/ac productivity, not equal to 100 lbs/ac.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 784.21; R645-301-322.

Analysis:

Attachment 3-2, Threatened, Endangered, and Sensitive Species Inventory Report (EIS Environmental & Engineering Consulting, May 10, 2002) reports that a survey was conducted for the species identified by the U.S. Fish and Wildlife Service (USFWS), the State of Utah and the Bureau of Land Management (BLM) as having the potential to occur at the site of MW-02.

Federally listed species with the potential for occurrence in the area were the following (the green font indicates potential habitat at MW-02):

Uintah basin hookless cactus (*Sclerocactus glaucus*)
Wright fishhook cactus (*Sclerocactus wrightiae*)

Despain footcactus (*Pediocactus dewspainii*)
Winkler footcactus (*Pediocactus winkleri*)
Last chance townsendia (*Townsendia aprica*)
Jones cycladenia (*Clycladenai humilis var. Jonesii*)
Graham beardtongue (*Penstemon grahamii*)
Maguire daisy (*Erigeron maguirei Cronq.* Var. *maguirei*
Shrubby reed-mustard (*Schoencrambe suffrutescens*)
Barneby peppergrass (*Lepidium barnebyanum*)
Barnegby reed-mustard (*Schoenocrambe barnebyi*)

State of Utah and BLM candidate and sensitive species potentially occurring in Emery, Carbon, and Duchesne Counties (green font indicates potential habitat at MW-02):

Tufted cryptantha (*Cryptantha caespitosa*)
Creutzfeldt-flower (*Cryptantha creutzfeldtii*)
Canyon sweetvetch (*Hedysarum occidentale* var. *canone*
Low hymenoxys (*Hymenoxys depressa*)
Helenium hymenoxys (*Hymenoxys helenioides*)
Bicknell milkvetch (*Astragalus consobrinus*)
Basalt milkvetch (*Astragalus subcinereus*)
Sedge fescue (*Festuca dasyclada*)
Mussentuchit gilia (*Gilia tenuis*)
Entrada rushpink (*Lygodesmia entrada*)
Book Cliffs blazing star (*Mentzelia multicaulis* var *librina*)
Jones indigo-bush (*Psorothamnus ploydenius* var *jonesii*
Psoralea globemallow (*Sphaeralcea psoraloides*)
Thompson talinum (*Talinum thompsonii*

And:

Burrowing owl (*Athene cunicularia*)
Loggerhead shrike (*Lanius ludovicianus*)

Suitable habitat was encountered for the Last chance townsendia (*Townsendia aprica*), Tufted cryptantha (*Cryptantha caespitosa*), Canyon sweetvetch (*Hedysarum occidentale* var. *canone,* Helenium hymenoxys (*Hymenoxys helenioides*), Bicknell milkvetch (*Astragalus consobrinus*), Basalt milkvetch (*Astragalus subcinereus*), and Sedge fescue (*Festuca dasyclada*), but none were encountered during the survey. The habitat at MW-02 was considered unsuitable for loggerhead shrike and burrowing owl.

Attachment 3-2 also contains the Division of Wildlife Resources, 2002 Raptor Survey for the Pine Canyon UT Quad. The survey came within a half-mile of the proposed location. Nests number 27 and 28 are the nearest raptor nests shown on the Pine Canyon Quad. There is no discussion of whether the nest is inhabited or what species might occupy the nest, see deficiency written under R645-301-131. The application indicates that there are "no suitable nesting sites

noted on or adjacent to the degas well site" (Section 322.200). The raptor survey did not cover the immediate location of the degas well site, and therefore, this statement is misleading.

The application has not evaluated whether the area is suitable Spotted Owl habitat.

JBR conducted a survey in 2002 for bats. No further information is provided. See deficiencies written under R645-301-131 and 132.

The site which was reported to have 64% cover hampering the investigation for archaeological remains was disturbed in 1998 by the Permittee and now is 64% bare ground. The consultant's vegetative survey was solely of the disturbed area. A map of the vegetation of the surrounding area must be provided.

Findings

The information provided is not adequate for the purposes of the Environmental Resources Fish and Wildlife information. Deficiencies that cover some issues identified above have been written under R645-301-131 and -132. In addition, prior to approval, the Permittee must provide the following in accordance with:

R645-301-121.200, The application indicates that there are "no suitable nesting sites noted on or adjacent to the degas well site" (Section 322.200). The raptor survey did not cover the immediate location of the degas well site, and therefore, this statement is misleading.

R645-301-323.400, The application must include a map outlining vegetative types and plant communities in the area adjacent to MW-02, sufficient to allow evaluation of vegetation as important habitat for wildlife identified as potentially occurring at the site (loggerhead shrike and burrowing owl).

R645-301-322.230, The application must evaluate whether the area is suitable Spotted Owl habitat.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.21; 30 CFR 817.22; 30 CFR 817.200(c); 30 CFR 823; R645-301-220; R645-301-411.

Analysis:

Attachment 2-1 Topsoil Evaluation for Methane Degas Wells Dugout Canyon Mine Carbon County Utah, May 20, 2002 indicates that the soils in the vicinity of MW-02 were classified in the 1988 Carbon County Soil Conservation Service Soil Survey as Map Unit 62,

Midfork-Comodore Complex. According to the information provided in Attachment 2-1 the Midfork-Comodore Complex includes Midfork family bouldery loam and Comodore bouldery loam on the slopes and 30% other soils. In all instances, the surface soil has a layer of partially decomposed twigs, leaves, and needles between one or two inches thick covering a brown bouldery loam (topsoil) layer about six inches thick.

The other soils mentioned in the SCS survey for Map Unit 62 include Midfork family soil that has a layer of calcium carbonate accumulation. The soils of the site are noticeably white in the photos taken by the OSM Evaluation team 2002 review of exploration reclamation success (O:007039.dug/IMAGES/DugoutEXP/P0000471 and P0000475). This leads the Division to believe that the removal of topsoil, prior to exploration, left the layer of calcium carbonate accumulation on the surface. This would create a surface crust, making the site resistant to wind erosion, but also difficult for seed germination and water infiltration.

The consultant notes in Attachment 2-1 that topsoil has been pushed to the sides of the present pad and side cast over the slopes. The application should quantify how much topsoil is available on the edges of the pad. This side-cast material more than likely is the best available material in the area for reclamation.

Findings

The information provided does not meet the minimum requirements of the Environmental Resource Information. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-222.200, The application should describe and quantify how much topsoil is available from the side-cast material on the edges of the pad.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.22; R645-301-411.

Analysis:

Current land use is wildlife and grazing. The land is zoned MG-1 (mining and grazing) by Carbon County. The land is owned by Canyon Fuel Company, LLC. The submittal does not provide the information required by R645-301-411.120.

Findings

The information provided does not meet the minimum requirements of the Land Use Resource Information. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-411.120, The application must include a discussion of the land capability giving consideration to the major plant communities of the area before exploration drilling disturbed the surface.

ALLUVIAL VALLEY FLOORS

Regulatory Reference: 30 CFR 785.19; 30 CFR 822; R645-302-320.

Analysis:

Alluvial Valley Floor Determination

The site is at an elevation of approximately 8,000 feet on a ridge above a drainage. The site is in the NorthHorn formation. Alluvial sediments deposited by Dugout and Fish Creek drainages are far below the site as shown on Plate 6-1.

Findings:

The Division finds that the site is not located in an alluvial valley floor.

PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

Analysis:

Prime farmland does not exist at this elevation in the Book Cliffs. The growing season is short (60 days) and there is no developed water source. The Utah Agricultural Experiment Station Research Report Number 76 entitled "Important Farmlands of Parts of Carbon, Emery, Grand, and Sevier Counties" does not include R 12 E, T 13 S.

Regulation R645-302-313 requires that a reconnaissance inspection is done for all permit applications whether or not Prime Farmland is present and that the Division and Natural Resource Conservation Service will determine the extent of the reconnaissance inspection. On November 11, 2002, the Division consulted with Gary Roeder, Area Conservationist with the

NRCS Price Field Office concerning this well location. Mr. Roeder also concluded that the site does not fit the parameters of prime farmland.

Findings

The information provided is adequate for the purposes of the Regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Affected Area Boundary Maps

The application must include a map of the site showing disturbed area boundaries and areas within the proposed boundaries that have been previously disturbed by exploration.

Vegetation Reference Area Maps

The application must include the location and boundary of a reference area on a map. See deficiency written under R645-301-232.100.

Findings:

The information provided is not adequate for the purposes of the Regulations. The application must include the location and boundary of a reference area on a map. See deficiency written under R645-301-232.100. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-521.141 and –521.150, -521.151, -521.152, -521-162, The application must include a map of the site showing disturbed area boundaries and areas within the proposed boundaries that have been previously disturbed by exploration.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: 30 CFR784.17; R645-301-411.

Analysis:

The site of MW-02 does not encompass an historic place or public park.

Findings

The information provided meets the requirements of the Regulations.

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Protection and Enhancement Plan

The plan, as presented, includes fencing of the mud pits (Section 358.500), but does not even mark perimeters for the site (Section 521.200). The proposed disturbed area must be marked before disturbance. The entire site should be fenced to eliminate wildlife access during operations and after reclamation until the site is successfully revegetated.

Section 333.300 of the approved MRP indicates that all personnel will receive annual awareness and protection training for all employees.

The protection plan (Section 333.300) indicates that surveys for raptor nests will be conducted before mining activity and for two seasons after mining has ceased. The location of this well MW-02 must be added to the UDWR flight pattern during their annual raptor survey flights.

Findings:

The information provided does not meet the minimum requirements of the Operation Plan, Fish and Wildlife Information. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-333.300, Section 333.300 of the submittal must indicate (1) that the perimeter of the site will be marked and that entire site will be fenced (2) that the location of this well MW-02 will be added to the UDWR flight pattern during their annual raptor survey flights from this point forward until two seasons after mining operations cease.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

Rocks will be removed to the perimeter of the disturbed area (Section 232.600) to be used to create wildlife habitat during reclamation.

A professional soil scientist will supervise the soil salvage operations (Section 232.100). Approximately 472 cu yds of topsoil will be salvaged from the site. **That equates to a salvage depth of 2 inches over the site (Section 222.400).** The stockpile will be 200 feet X 20 feet X 3.19 feet high (Section 231.400). A berm or silt fence will be constructed around the stockpile (Section 234.200).

Section 232.300 indicates, "the topsoil will be removed with the immediately underlying unconsolidated materials." But this statement is contradicted by Section 232.500, which indicates, "the B and C soils horizons will not be removed and stockpiled."

The submittal indicates in Section 232.400 that topsoil will not be removed where construction will result in minor disturbance to the site and where vegetation will not be impacted. Such statements must not be included in the plan unless there are specific areas being contemplated for disturbance without topsoil removal. The Division requires that areas where topsoil is not to be removed must be outlined on a map, prior to approval.

Section 234.300 includes information on "Host Site" and "Topsoil Suitability" that is nullified by the preceding statement that the Division will approve any modification of the topsoil stockpile location. The Division reserves its right to review information before approving any modifications and requests that information included under the Host Site and Topsoil Suitability headings of the amendment is removed.

The submittal outlines two inches of topsoil will be salvaged. Attachment 2-1 indicates that there is between two and six inches of soil available for salvage and that topsoil has been removed from the present pad and pushed to the sides. The submittal must quantify the amount of available topsoil on the sides of the disturbance and commit to the salvage of six inches of soil from the disturbed site.

Soils were not analyzed during the topsoil survey (Section 243). At a minimum, the stored topsoil and salvaged disturbed soils of MW-02 should be analyzed for the following

parameters immediately after soil salvage: pH, Electrical Conductivity, Sodium Adsorption Ratio, percent $CaCO_3$, plant available Nitrogen, Potassium, and Phosphorus.

Findings:

The information provided does not meet the minimum requirements of the Operation Plan, Topsoil and Subsoil removal. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-224, The application must include a commitment to analyze the stored topsoil and salvaged disturbed soils of MW-02 for the following parameters immediately after salvage: pH, Electrical Conductivity, Sodium Adsorption Ratio, percent $CaCO_3$, plant available Nitrogen, Potassium, and Phosphorus.

R645-301-232.200 and –232.300, Clearly indicate that six inches of soil will be removed and stored for use as substitute topsoil from the disturbed site and eliminate contradictions in the narrative between Section 232.300 and 232.500 concerning the depth of soil salvage.

R645-301-234.300, The Division reserves its right to review information before approving any modifications and requests that information included under the Host Site and Topsoil Suitability headings of the amendment is removed.

R645-301-232.400, Remove the statements such as those found in R634-301-232.400 from the operating plan, unless there are specific areas being contemplated for disturbance without topsoil removal and outline those areas where topsoil is not to be removed on a map.

R645-301-234.230, The application should describe surface pitting of the stockpile.

R645-301-231.100, The application should describe topsoil handling plans including the equipment to be used and moisture content below which soils will not be handled.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

The application indicates that vegetation will be grubbed and moved to the perimeter of the disturbed area (Section 232.600) to be used to create piles of brush as wildlife habitat during

reclamation. However, the site contains little vegetation to grub. Most of the vegetation on the site should be included with the soil salvage and contained within the substitute topsoil storage pile for added organic matter. Areas that expand from the currently disturbed area into vegetated areas should be shown on a map.

Findings:

The information provided does not meet the minimum requirements of the Operation Plan, Vegetation. Show disturbed and undisturbed areas on a map of the proposed affected area, see deficiency listed under R645-301-521.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

Sample the mud pit for chemical characteristics.

Findings:

The information provided is not adequate for the purposes of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-731.311, The application must indicate that the slurry in the mud pit will be sampled for acid/toxic forming characteristics as described in Table 6 of the Division's Topsoil and Overburden Guidelines.

RECLAMATION PLAN

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

Post mining land use is wildlife and grazing. The seed mix will be chosen to enhance the post mining land use.

Findings:

The information is adequate for the purposes of the regulations.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

Low productivity of the reclamation on DCH-5 appears to be due to the drought and grazing pressure. The reclamation plan should include fencing the site until vegetation is established.

The access road will require some improvement (Section 527.200). The access road will not be reclaimed (Section 542.600). The road should be reduced in size to comply with the commitment made elsewhere in the plan to limit disturbance in order to minimize the impacts to wildlife.

Findings:

The information provided does not meet the minimum requirements of the Reclamation Protection of Fish Wildlife and Related Environmental Values Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301- 333, (1) The application must indicate that the 1500 foot access road will be reduced in size during final reclamation to comply with the commitment to minimize disturbance and reclaim disturbed areas when no longer needed given in Section 333 of the approved MRP. (2) The reclamation plan should include fencing the site until vegetation is established.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

The site will be ripped to a depth of eight inches (Section 242.100 and 341.200). This is not an adequate ripping depth. Where possible, the site should be ripped from 18 inches to 24 inches deep.

Front-end loaders will be used to transport and dump the two inches of topsoil. To prevent topsoil compaction, equipment will refrain from unnecessary travel over the topsoil.

Soils will be analyzed before being redistributed to determine if amendments are needed (Section 243). Some explanation of what soils will be sampled and what analysis will take place is required. The Division is of the opinion that organic matter must be introduced to the soils to alleviate the hard pan formed by the accumulation of calcium carbonate.

The incised mud pit will be covered with four feet of stored soil that will be compacted to minimize settling (Section 542.500). The plan must indicate a method to reduce compaction in the mud pit. The plan should indicate some mixing of the cover material with the clays of the mud pit to avoid creating an abrupt boundary between the layers.

Findings:

The information provided does not meet the minimum requirements of the Reclamation Topsoil Redistribution Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-243, Clearly indicate what soils will be sampled and what analysis will take place to ensure that there is an adequate rooting depth and rooting medium for revegetation and the plan must contemplate the addition of organic matter to enhance the soils.

R645-301-242.120, (1) The plan must indicate that the site will be ripped to a depth of 18 – 24 inches where possible and the bonding information for the site should reflect this reclamation step. (2) The plan must indicate a method to reduce compaction in the mud pit. The plan should indicate some mixing of the cover material with the clays of the mud pit to avoid creating an abrupt boundary between the layers.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General

The mud pit and other areas of the site will be reclaimed in the same season as the well is drilled. A radius of 50 feet will be maintained around the fan blower that is not reclaimed until the fan is turned off and the well is plugged (Section 529). Although this plan will likely require that some of the area is redisturbed during final reclamation, the concept of immediately stabilizing the site is sound.

Findings:

The information provided is adequate for the purposes of the regulations.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

Revegetation: General Requirements

Seed mix to be used is described in Chapter 3 Section 352 (page 2-3, Section 231.300).

The plan indicates first that vegetative cover will be reestablished to be at least equal to what is presently at the site (Section 353.100) and second that the site will be restored to the limits presented by the E.I.S inventory (Section 356.200). This survey provided in Attachment 3-1 did not follow the Division's Vegetation Guidelines for sample size.

Attachment 3-1 indicates that the site is in very poor range condition. This assessment was confirmed by the OSM Evaluation Team Exploration Reclamation Success team report (see discussion under Environmental Resources Vegetation information. In fact that team recommended that the site must be reclaimed according to the coal rules if the methane degas well is approved. The Division will require that an undisturbed reference area is evaluated for comparison with the site.

According to Attachment 3-1, low productivity of the reclamation on DCH-5 appears to be due to the drought and grazing pressure. The reclamation plan should include fencing the site until vegetation is established.

The Division will require further information from the Permittee concerning the undisturbed vegetation of the area, before consulting with the DWR on shrub stocking requirements.

Revegetation: Timing

Reclamation will occur after methane venting is completed (page 2-3, Section 231.300). Figure 5.4 is the reclamation timetable. This timetable shows three steps: plugging the well, spreading the topsoil, and seeding/mulching. This timetable does not indicate topsoil/subsoil sampling, ripping subsoil, straw mulch application, gouging, and creation of brush and rock piles.

Revegetation: Mulching and Other Soil Stabilizing Practices

The reclamation plan should also include a means to mimic the one to two inch layer of litter found on the undisturbed areas of this ridge. (As described in Attachment 2-1, Soil Survey for the area.)

Revegetation: Standards For Success

Standards for success are described in Section 356.100 as including criteria representative of undisturbed lands in the area. But no such information is presented with the application. The application must include a discussion and survey of the existing undisturbed vegetation on the ridge. When conducting these surveys, the Division's Vegetation Guidelines for sample size should be followed. Division does not agree that the standards for success should be the existing site condition. The seasonality of the seed mix (Section 353.200) and the indigenous nature of the seed (Section 353.100) cannot be evaluated until the species in adjacent undisturbed areas are described.

Findings:

The information provided does not meet the minimum requirements of the Reclamation Revegetation requirements of the Regulations. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-354, The application in Figure 5.4 does not indicate topsoil/subsoil sampling, ripping subsoil, straw mulch application, gouging, and creation of brush and rock piles in the timetable.

R645-301-356.200, The application must describe a method to exclude grazing animals from the site during operations and reclamation.

R645-301-355, The plan must describe efforts to re-establish a layer of litter 1 – 2 inches deep on the surface of the reclaimed site.

R645-301-356.100, Provide further information on the vegetation existing in the undisturbed areas around the site so that a vegetation success standard can be established, woody plant density standards can be determined, a reference area can be chosen and seed mix can be evaluated. Vegetation surveys must follow the Division's Vegetation Guidelines.

STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

Analysis:

Erosion control measures will include silt fences, berms, seeding, and mulching of the soils. Disruptive gullies (greater than nine inches) will be reseeded (244.300). Surfaces will be left rough. Mulch will be applied at 2,000 lbs/ac and left in a roughened state (Section 341.200).

Findings:

The information provided is adequate for the purposes of the regulations.

RECOMMENDATIONS:

The Permittee has described salvage and replacement of only two inches of substitute topsoil. The Permittee has not evaluated the vegetation of the undisturbed area. Therefore, the adequacy of the seed mix cannot be determined, the woody plant density cannot be discussed, and the success standards cannot be set. The Permittee has not developed an adequate plan.

The site is previously disturbed by exploration drilling and was found to be in poor condition by an inspection of the OSM Evaluation Team during June 2002. The Permittee should have made an effort to describe the pre-existing conditions at the site, by reference to the conditions occurring in undisturbed, similar areas and to develop a reclamation plan to enhance the site.

The Division will require further information from the Permittee concerning the undisturbed vegetation of the area, before consulting with the DWR on shrub stocking requirements.

Revegetation: Timing

Reclamation will occur after methane venting is completed (page 2-3, Section 231.300). Figure 5.4 is the reclamation timetable. This timetable shows three steps: plugging the well, spreading the topsoil, and seeding/mulching. This timetable does not indicate topsoil/subsoil sampling, ripping subsoil, straw mulch application, gouging, and creation of brush and rock piles.

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Findings:

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